SEQUENCE LISTING

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        JULIEN, RAYMOND
        LAFORET, MARIE-PIERRE
        LEVEZIEL, HUBERT

<120>   USE OF SILVER GENE FOR THE AUTHENTICATION OF
        THE RACIAL ORIGIN OF ANIMAL POPULATIONS, AND
        OF THE DERIVATIVE PRODUCTS THEREOF

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<141>   2006-03-24

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Lys Gly Gly Ser Gly Thr Tyr Cys Leu Asn Val Ser Leu Ala Asp Ala
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Page 8

Asn Ser Leu Ala Met Val Ser Thr Gln Leu Val Met Pro Gly Gln Glu
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Thr Ala Leu Leu Leu Ala Ser Leu Ile Tyr Arg Arg Arg Leu Met Lys
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Gln Gly Ser Ala Val Pro Leu Pro Gln Leu Pro Gly Arg Thr Gln
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Ser Gln Gly Pro Asp Cys Trp Arg
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Ile Gly Ala Asn Ala Ser Phe Ser Ile Ala Leu His Phe Pro Lys Ser
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Ile Asn
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Leu Ser Gln Lys Arg Cys Phe Val Tyr Val Trp Lys Thr Trp
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Glu Val Thr Val Tyr His Arg Arg Gly Ser Gln Ser Tyr Val Pro Leu
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Ala His Ser Ser Ser Ala Phe Thr Ile Thr
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Gln Val Pro Phe Ser Val Ser Val Ser Gln Leu Gln Ala Leu Asp Gly
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agg aac aag cgc ttc ctg aga aag cag cct ctg acc ttt gcc ctc cag      4830
Arg Asn Lys Arg Phe Leu Arg Lys Gln Pro Leu Thr Phe Ala Leu Gln
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ctc cat gat ccc agt ggc tat ttg gct ggg gct gac ctt tcc tac acc      4878
Leu His Asp Pro Ser Gly Tyr Leu Ala Gly Ala Asp Leu Ser Tyr Thr
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Trp Asp Phe Gly Asp Ser Thr Gly Thr Leu Ile Ser Arg Ala Leu Thr
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Val Thr His Thr Tyr Leu Glu Ser Gly Pro Val Thr Ala Gln Val Val
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Leu Gln Ala Ala Ile Pro Leu Thr Ser Cys Gly Ser Ser Pro Val Pro
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Gly Thr Thr Asp Arg His Val Thr Thr Ala Glu Ala Pro Gly Thr Thr
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Val Pro Thr Ala Glu Ala Pro Gly Thr Thr Val Gly Trp Val Pro Thr
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Thr Glu Asp Val Gly Thr Thr Pro Glu Gln Val Ala Thr Ser Lys Val
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Leu Ser Thr Thr Pro Val Glu Met Pro Thr Ala Lys Ala Thr Gly Arg
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Thr Pro Glu Val Ser Thr Thr Glu Pro Ser Gly Thr Thr Val Thr Gln
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Gly Thr Thr Pro Glu Leu Val Glu Thr Thr Ala Gly Glu Val Ser Thr
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Thr Leu Val Leu Glu Lys Arg Gln Ala Pro Leu Asp Cys Val Leu Tyr
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Arg Tyr Gly Ser Phe Ser Leu Thr Leu Asp Ile Val
465                 470                 475

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Cys Met Asp Ile Ser Ser Pro Gly Cys Gln Leu Pro Ala Gln Arg Leu
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Cys Gln Pro Val Pro Pro Ser Pro Ala Cys Gln Leu Val Leu His Gln
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Val Leu Lys Gly Gly Ser Gly Thr Tyr Cys Leu Asn Val Ser Leu Ala
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Asp Ala Asn Ser Leu Ala Met Val Ser Thr Gln Leu Val Met Pro
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Thr Ala Leu Leu Leu Ala Ser Leu Ile Tyr Arg
                595                 600

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           605                 610                 615

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635                     640                     645


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Leu Gly Val Ser Arg Gln Leu Arg Ile Lys Ala Trp Asn Arg Gln Leu
        35                  40                  45

Tyr Pro Glu Trp Thr Glu Ser Gln Gly Pro Asp Cys Trp Arg Gly Gly
    50                  55                  60

His Ile Ser Leu Lys Val Ser Asn Asp Gly Thr Leu Ile Gly Ala
65                  70                  75                  80

Asn Ala Ser Phe Ser Ile Ala Leu His Phe Pro Lys Ser Gln Lys Val
                85                  90                  95

Leu Pro Asp Gly Gln Val Ile Trp Ala Asn Asn Thr Ile Ile Asn Gly
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Leu Asp Gly Arg Asn Lys Arg Phe Leu Arg Lys Gln Pro Leu Thr Phe
225                 230                 235                 240

Ala Leu Gln Leu His Asp Pro Ser Gly Tyr Leu Ala Gly Ala Asp Leu
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Ser Tyr Thr Trp Asp Phe Gly Asp Ser Thr Gly Thr Leu Ile Ser Arg
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Ala Leu Thr Val Thr His Thr Tyr Leu Glu Ser Gly Pro Val Thr Ala
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Gln Val Val Leu Gln Ala Ala Ile Pro Leu Thr Ser Cys Gly Ser Ser
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Ser Lys Val Leu Ser Thr Thr Pro Val Glu Met Pro Thr Ala Lys Ala
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Thr Leu Val Leu Glu Lys Arg Gln Ala Pro Leu Asp Cys Val Leu Tyr
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Pro Val Pro Pro Ser Pro Ala Cys Gln Leu Val Leu His Gln Val Leu
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Ala Gly Leu Arg Gln Ala Pro Leu Phe Val Gly Ile Leu Leu Val Leu
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Page 16

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Leu Leu His Val Ala Leu Met Gly Val Leu Ala Val Gly Thr Thr Glu
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Cys Phe Val Tyr Val Trp Lys Thr Trp
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Ser Thr Gly Thr Leu Ile Ser Arg Ala Leu Thr Val Thr His Thr Tyr
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Ser Leu Thr Leu Asp Ile Val
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Gln Val Trp Gly Gly Gln Leu Val Tyr Pro Gln Glu Pro Asp Asp Thr
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Leu Thr Val Ser Cys Gln Gly Gly Leu Pro Lys Glu Ala Cys Met Asp
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Ile Ser Ser Pro Gly Cys Gln Leu Pro Ala Gln Arg Leu Cys Gln Pro
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Val Pro Pro Ser Pro Ala Cys Gln Leu Val Leu His Gln Val Leu Lys
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Gly Gly Ser Gly Thr Tyr Cys Leu Asn Val Ser Leu Ala Asp Ala Asn
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Ser Leu Ala Met Val Ser Thr Gln Leu Val Met Pro Gly Gln Glu Ala
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Gly Leu Arg Gln Ala Pro Leu Phe Val Gly Ile Leu Leu Val Leu Thr
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Ala Leu Leu Leu Ala Ser Leu Ile Tyr Arg Arg Arg Leu Met Lys Gln
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Gly Ser Ala Val Pro Leu Pro Gln Leu Pro His Gly Arg Thr Gln Trp
                          Page 24
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Leu Gly Val Ser Arg Gln Leu Arg Ile Lys Ala Trp Asn Arg Gln Leu
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Tyr Pro Glu Trp Thr Glu Ser Gln Gly Pro Asp Cys Trp Arg Gly Gly
        50   55   60

His Ile Ser Leu Lys Val Ser Asn Asp Gly Pro Thr Leu Ile Gly Ala
65   70   75   80

Asn Ala Ser Phe Ser Ile Ala Leu His Phe Pro Lys Ser Gln Lys Val
                    85   90   95

Leu Pro Asp Gly Gln Val Ile Trp Ala Asn Asn Thr Ile Ile Asn Gly
                100   105   110

Ser Gln Val Trp Gly Gly Gln Leu Val Tyr Pro Gln Glu Pro Asp Asp
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Thr Cys Ile Phe Pro Asp Gly Glu Pro Cys Pro Ser Gly Pro Leu Ser
        130   135   140

Gln Lys Arg Cys Phe Val Tyr Val Trp Lys Thr Trp Asp Gln Tyr Trp
145   150   155   160

Gln Val Leu Gly Gly Pro Val Ser Gly Leu Ser Ile Gly Thr Asp Lys
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Ala Met Leu Gly Thr Tyr Asn Met Glu Val Thr Val Tyr His Arg Arg
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Gly Ser Gln Ser Tyr Val Pro Leu Ala His Ser Ser Ser Ala Phe Thr
                195   200   205

Ile Thr Asp Gln Val Pro Phe Ser Val Ser Val Ser Gln Leu Gln Ala
Page 27

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         210                    215                    220
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Val Ser Thr Pro Glu Pro Ala Gly Ser Asn Thr Ser Ser Phe Met Pro
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Thr Leu Val Leu Glu Lys Arg Gln Ala Pro Leu Asp Cys Val Leu Tyr
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Pro Val Pro Pro Ser Pro Ala Cys Gln Leu Val Leu His Gln Val Leu
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Lys Gly Gly Ser Gly Thr Tyr Cys Leu Asn Val Ser Leu Ala Asp Ala
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Asn Ser Leu Ala Met Val Ser Thr Gln Leu Val Met Pro Gly Gln Glu
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Ala Gly Leu Arg Gln Ala Pro Leu Phe Val Gly Ile Leu Leu Val Leu
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Thr Ala Leu Leu Leu Ala Ser Leu Ile Tyr Arg Arg Arg Leu Met Lys
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Gln Gly Ser Ala Val Pro Leu Pro Gln Leu Pro His Gly Arg Thr Gln
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Lys Pro Leu Leu Ser Gly Gln Gln Val
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cagtatccct  gcttttctcc  caatatcagg  cgaagactta  tgaagcaagg  ctcagcagtc       7920
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ccccttcccc agctgccaca cggtagaacc cagtggctac gtctgccctg ggtcttccgc      7980
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tgtgaagtca tgatttaccc aggtggacag caaggcctgt ctttttctcg gtcttccctc      8100
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<210> 15
<211> 2086
<212> DNA
<213> Artificial sequence

<220>
<223> Synthetic nucleotide

<400> 15

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actggcttgg tgtctcaagg cagctcagaa ttaaagcatg gaacagacag ctgtatccag     180
agtggacaga aagccagggg cctgactgct ggagaggtgg ccacatatcc ctgaaggtca     240
gcaatgatgg gcctacactg attggggcaa atgcttcctt ctctattgcc ttgcactttc     300
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atgtctggaa gacctgggac caatactggc aagttctggg gggcccagtg tctggactga     540
gcatcgggac agacaaggca atgctgggca caataacat ggaagtgact gtctaccacc     600
gccgggggcc ccagagctat gtgcccctcg ctcactccag ttcagccttc accattactg     660
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tgctcttatg tgaagtcatg atttacccag gtggacagca aggcctgtct tttctctggt    2040
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<210> 16
<211> 1584
<212> DNA
<213> Artificial sequence

<220>
<223> Synthetic nucleotide

<400> 16

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tctgaccttt gccctccagc tccatgatcc cagtggctat ttggctgggg ctgacctttc    300
ctacacctgg gactttggtg acagtacagg gaccctgatc tctcgggcac tcacggtcac    360
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agaggctcct ggaaccacag ctggccaagt gcctactaca gaagtcatgg gcaccacacc    540
tggccaggtg ccaactgcag aggccctgg caccacagtt gggtgggtgc caaccacaga    600
ggatgtaggt accacacctg agcaggtggc aacttccaaa gtcttaagta caacaccagt    660
ggagatgcca actgcaaaag ctacaggtag gacacctgaa gtgtcaacta cagagccctc    720
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cccctggat tgtgttctgt atcgctatgg ctccttttcc ctcacctggg acattgtcag    960
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gtgtcagctg cctgcccagc ggctgtgtca gcctgtgccc cccagcccag cctgccagct   1140
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cctcaggcag gctccctctgt cctgggcat cttgctgggta ctaacagctt tgttgcttgc   1320
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gccacacggt agaacccagt ggcctacgtct gccctgggtc ttccgctctt gcccccattgg   1440
tgagagcaaa cccctcctca gtggacagca ggtctgagtg ctcttatgtg aagtcatgat   1500
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cctgaaataa agactcagaa cttg                                          1584
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<210> 17
<211> 649
<212> PRT
<213> Artificial sequence

<220>
<223> Synthetic peptide

<400> 17

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Val Leu Leu Ala Val Arg Thr Thr Glu Gly Pro Arg Asp Arg Asp Trp
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Leu Gly Val Ser Arg Gln Leu Arg Ile Lys Ala Trp Asn Arg Gln Leu
        35                  40                  45

Tyr Pro Glu Trp Thr Glu Ser Gln Gly Pro Asp Cys Trp Arg Gly Gly
    50                  55                  60

His Ile Ser Leu Lys Val Ser Asn Asp Gly Pro Thr Leu Ile Gly Ala
65                  70                  75                  80

Asn Ala Ser Phe Ser Ile Ala Leu His Phe Pro Lys Ser Gln Lys Val
                85                  90                  95

Leu Pro Asp Gly Gln Val Ile Trp Ala Asn Asn Thr Ile Ile Asn Gly
```

Ser Gln Val Trp Gly Gly Gln Leu Val Tyr Pro Gln Glu Pro Asp Asp
        115   120   125

Thr Cys Ile Phe Pro Asp Gly Glu Pro Cys Pro Ser Gly Pro Leu Ser
        130   135   140

Gln Lys Arg Cys Phe Val Tyr Val Trp Lys Thr Trp Asp Gln Tyr Trp
145   150   155   160

Gln Val Leu Gly Gly Pro Val Ser Gly Leu Ser Ile Gly Thr Asp Lys
                        165   170   175

Ala Met Leu Gly Thr Tyr Asn Met Glu Val Thr Val Tyr His Arg Arg
        180   185   190

Gly Ser Gln Ser Tyr Val Pro Leu Ala His Ser Ser Ser Ala Phe Thr
        195   200   205

Ile Thr Asp Gln Val Pro Phe Ser Val Ser Val Ser Gln Leu Gln Ala
        210   215   220

Leu Asp Gly Arg Asn Lys Arg Phe Leu Arg Lys Gln Pro Leu Thr Phe
225   230   235   240

Ala Leu Gln Leu His Asp Pro Ser Gly Tyr Leu Ala Gly Ala Asp Leu
        245   250   255

Ser Tyr Thr Trp Asp Phe Gly Asp Ser Thr Gly Thr Leu Ile Ser Arg
        260   265   270

Ala Leu Thr Val Thr His Thr Tyr Leu Glu Ser Gly Pro Val Thr Ala
        275   280   285

Gln Val Val Leu Gln Ala Ala Ile Pro Leu Thr Ser Cys Gly Ser Ser
        290   295   300

Pro Val Pro Gly Thr Thr Asp Arg His Val Thr Thr Ala Glu Ala Pro
305   310   315   320

Gly Thr Thr Ala Gly Gln Val Pro Thr Thr Glu Val Met Gly Thr Thr
        325   330   335

Pro Gly Gln Val Pro Thr Ala Glu Ala Pro Gly Thr Thr Val Gly Trp
        340   345   350

```
Val Pro Thr Thr Glu Asp Val Gly Thr Thr Pro Glu Gln Val Ala Thr
        355             360             365

Ser Lys Val Leu Ser Thr Thr Pro Val Glu Met Pro Thr Ala Lys Ala
        370             375             380

Thr Gly Arg Thr Pro Glu Val Ser Thr Thr Glu Pro Ser Gly Thr Thr
385             390             395             400

Val Thr Gln Gly Thr Thr Pro Glu Leu Val Glu Thr Thr Ala Gly Glu
            405             410             415

Val Ser Thr Pro Glu Pro Ala Gly Ser Asn Thr Ser Ser Phe Met Pro
        420             425             430

Thr Glu Gly Thr Ala Gly Ser Leu Ser Pro Leu Pro Asp Asp Thr Ala
        435             440             445

Thr Leu Val Leu Glu Lys Arg Gln Ala Pro Leu Asp Cys Val Leu Tyr
    450             455             460

Arg Tyr Gly Ser Phe Ser Leu Thr Leu Asp Ile Val Gln Gly Ile Glu
465             470             475             480

Ser Ala Glu Ile Leu Gln Ala Val Ser Ser Ser Glu Gly Asp Ala Phe
            485             490             495

Glu Leu Thr Val Ser Cys Gln Gly Gly Leu Pro Lys Glu Ala Cys Met
        500             505             510

Asp Ile Ser Ser Pro Gly Cys Gln Leu Pro Ala Gln Arg Leu Cys Gln
        515             520             525

Pro Val Pro Pro Ser Pro Ala Cys Gln Leu Val Leu His Gln Val Leu
        530             535             540

Lys Gly Gly Ser Gly Thr Tyr Cys Leu Asn Val Ser Leu Ala Asp Ala
545             550             555             560

Asn Ser Leu Ala Met Val Ser Thr Gln Leu Val Met Pro Gly Gln Glu
            565             570             575

Ala Gly Leu Arg Gln Ala Pro Leu Phe Val Gly Ile Leu Leu Val Leu
        580             585             590

Thr Ala Leu Leu Leu Ala Ser Leu Ile Tyr Arg Arg Arg Leu Met Lys
        595             600             605
```

Gln Gly Ser Ala Val Pro Leu Pro Gln Leu Pro His Gly Arg Thr Gln
    610   615   620

Trp Leu Arg Leu Pro Trp Val Phe Arg Ser Cys Pro Ile Gly Glu Ser
625   630   635   640

Lys Pro Leu Leu Ser Gly Gln Gln Val
                645

<210> 18
<211> 491
<212> PRT
<213> Artificial sequence

<220>
<223> Synthetic peptide

<400> 18

Gln Tyr Trp Gln Val Leu Gly Gly Pro Val Ser Gly Leu Ser Ile Gly
1   5   10   15

Thr Asp Lys Ala Met Leu Gly Thr Tyr Asn Met Glu Val Thr Val Tyr
            20   25   30

His Arg Arg Gly Ser Gln Ser Tyr Val Pro Leu Ala His Ser Ser Ser
        35   40   45

Ala Phe Thr Ile Thr Asp Gln Val Pro Phe Ser Val Ser Val Ser Gln
    50   55   60

Leu Gln Ala Leu Asp Gly Arg Asn Lys Arg Phe Leu Arg Lys Gln Pro
65   70   75   80

Leu Thr Phe Ala Leu Gln Leu His Asp Pro Ser Gly Tyr Leu Ala Gly
                85   90   95

Ala Asp Leu Ser Tyr Thr Trp Asp Phe Gly Asp Ser Thr Gly Thr Leu
            100   105   110

Ile Ser Arg Ala Leu Thr Val Thr His Thr Tyr Leu Glu Ser Gly Pro
        115   120   125

Val Thr Ala Gln Val Val Leu Gln Ala Ala Ile Pro Leu Thr Ser Cys
    130   135   140

Gly Ser Ser Pro Val Pro Gly Thr Thr Asp Arg His Val Thr Thr Ala
145   150   155   160

Glu Ala Pro Gly Thr Thr Ala Gly Gln Val Pro Thr Thr Glu Val Met
                165   170   175

Gly Thr Thr Pro Gly Gln Val Pro Thr Ala Glu Ala Pro Gly Thr Thr
                180   185   190

Val Gly Trp Val Pro Thr Thr Glu Asp Val Gly Thr Thr Pro Glu Gln
            195   200   205

Val Ala Thr Ser Lys Val Leu Ser Thr Thr Pro Val Glu Met Pro Thr
    210   215   220

Ala Lys Ala Thr Gly Arg Thr Pro Glu Val Ser Thr Thr Glu Pro Ser
225   230   235   240

Gly Thr Thr Val Thr Gln Gly Thr Thr Pro Glu Leu Val Glu Thr Thr
                245   250   255

Ala Gly Glu Val Ser Thr Pro Glu Pro Ala Gly Ser Asn Thr Ser Ser
                260   265   270

Phe Met Pro Thr Glu Gly Thr Ala Gly Ser Leu Ser Pro Leu Pro Asp
            275   280   285

Asp Thr Ala Thr Leu Val Leu Glu Lys Arg Gln Ala Pro Leu Asp Cys
    290   295   300

Val Leu Tyr Arg Tyr Gly Ser Phe Ser Leu Thr Leu Asp Ile Val Ser
305   310   315   320

Ile Glu Ser Ala Glu Ile Leu Gln Ala Val Ser Ser Ser Glu Gly Asp
                325   330   335

Ala Phe Glu Leu Thr Val Ser Cys Gln Gly Gly Leu Pro Lys Glu Ala
                340   345   350

Cys Met Asp Ile Ser Ser Pro Gly Cys Gln Leu Pro Ala Gln Arg Leu
            355   360   365

Cys Gln Pro Val Pro Pro Ser Pro Ala Cys Gln Leu Val Leu His Gln
    370   375   380

Val Leu Lys Gly Gly Ser Gly Thr Tyr Cys Leu Asn Val Ser Leu Ala
385   390   395   400

Asp Ala Asn Ser Leu Ala Met Val Ser Thr Gln Leu Val Met Pro Gly
                405   410   415

```
Gln Glu Ala Gly Leu Arg Gln Ala Pro Leu Phe Val Gly Ile Leu Leu
            420                 425                 430

Val Leu Thr Ala Leu Leu Leu Ala Ser Leu Ile Tyr Arg Arg Arg Leu
            435                 440                 445

Met Lys Gln Gly Ser Ala Val Pro Leu Pro Gln Leu Pro His Gly Arg
    450                 455                 460

Thr Gln Trp Leu Arg Leu Pro Trp Val Phe Arg Ser Cys Pro Ile Gly
465                 470                 475                 480

Glu Ser Lys Pro Leu Leu Ser Gly Gln Gln Val
            485                 490
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